

E-ONE CYCLONE**TABLE OF CONTENTS**

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For the purpose of this manual the left side will be the driver's side. The right side will be the officer's side.

SPECIFICATIONS

Length	30' 6" (366 in.)
Width	8' (96 in.)
Height	9' (108 in.)
Weight	38,600 pounds (19.3 tons)
Fuel Capacity	50 gallons (diesel)
Engine	6v92 Turbo 350 hp Detroit
Oil	32 quarts
Transmission	Allison HT 740 Automatic
Fluid	33 quarts
Pump	Hale 1250 gpm Single Stage
Hose	1100' of 4" 200' of 2" 300' of 1 ¾" 200' of 1" Booster
Booster Tank	500 Gallons
Fuel Consumption	Pumping 5-6 gallons per hour Road 5-6 miles per gallon
Motor Oil	SAE 30W 32 Qt.
Primer	30W (motor oil)
Power Steering	10W-40 (motor oil)
Transmission	33 qts. (Dextron)
Ladders	24' Extension 14' Roof 10' Attic
Tires (Front & Rear)	11 R 22.5

DAILY CHECKS

1. Make visual inspection of entire apparatus.
2. Check tires for proper inflation. (As per sidewall specifications)
3. Check the area underneath the truck for signs of leaks. If noted, check hoses and lines for signs of leaks. (Do not use bare hands to check for hydraulic leaks.)
4. Check the windshield washer fluid and refill if needed.
5. Check all oil and coolant levels, including engine, pump and axles.

Check the radiator through the opening in the top of the cowl forward of the engine opening. There is also a sight glass on the rear of the radiator to the right of center. The engine may shut down if low on coolant.

Check the oil on the right (officer's) side toward the middle of the motor. Fill with 30W motor oil. Capacity is 32 qts.

Power Steering: The power steering reservoir is on the right side at the rear of the motor. Fill with 10 W 40 motor oil.

The Transmission Fill is on the left (driver's) side of the engine at the rear of the motor. Fill with Dextron II transmission Fluid. Capacity is 33 quarts.

The primer reservoir is located behind the check panel under the pump panel. It is located under the relief valve wheel. The capacity is 4 quarts of 30W motor oil.



SAFETY CHECKS

1. Make a Check of all lighting including high and low beams, turn signals, hazard flashers, brake, tail, and backup lights and warning lights. Repair any defective lights.
2. Check all windshield wipers, washers and washer fluid. Check the operation of all instruments, gauges, and controls. After performing the pre-starting checks and safety checks, you are ready to operate the vehicle. Start the engine and make sure all systems are functioning

START ENGINE

WARNING: All internal combustion engines give off hazardous fumes and gases while running. DO NOT start or run the engine in a closed or poorly ventilated building where the exhaust gases can accumulate.

NOTE: The vehicle is equipped with a Neutral Safety Switch that prevents the vehicle from starting in any gear but neutral. If the vehicle fails to start, check the placement of the gear selector.



1. Check that the transmission is in (N) neutral and the parking brake is applied.
2. Turn battery selection switch to BOTH or the MASTER switch to the ON position.
3. Place the IGNITION switch to ON; push the ENGINE START button. Fasten the seat belt. After the engine starts, check the oil pressure guage to make sure the engine has adequate oil pressure (40-60 psi, 5-10 psi at idle). If necessary run the engine at a slightly higher RPM to build up air pressure prior to releasing the parking brake (90-120psi). Normal operating temperature is 160 - 210 degrees Fahrenheit.
4. If the engine does not start within 15-20 seconds after cranking; release the starter button. Wait approximately 30 seconds and repeat or double check the starting procedure.
5. If the engine does not start after three or four times, stop and refer to the service manual. CAUTION: Repeated or prolonged operation of starter may result in overheating, damage, premature wear of starter components, and/or drainage on electrical system.
6. Apply the brake pedal and release the parking brake (YELLOW BUTTON). Place the Transmission Selector in the desired position.
7. Proceed with caution.

STOP ENGINE

Read the Engine Operating Manual furnished by the manufacturer for recommended procedure.

1. Bring the truck to a complete stop using the service brake.
2. Shift the transmission to Neutral (N).
3. Set the Parking Brake by pulling the Parking Brake Control (yellow button).
4. Turn off all DOT and Warning lights.
5. Allow the engine to idle 3 to 5 minutes.
6. Depress the ENGINE STOP button until the motor stops completely.
7. Turn the Ignition Switch or the Master Switch to the OFF position.
8. While departing the vehicle turn the Battery Selector Switch to the OFF position.
9. **CAUTION:** Do not turn the Battery Selector Switch to the OFF position until the engine has completely stopped. Switching to the OFF position before the engine has stopped will damage the electrical system.
10. Turn battery selector switch to OFF, if so equipped.

EMERGENCY SHUTDOWN PROCEDURE

1. Pull off the road to a safe location.
2. Bring the apparatus to a complete stop.
3. Disengage the transmission and set the parking brake.
4. Flip up the guard marked EMERGENCY SHUTDOWN and flip down the toggle switch. The EMERGENCY SHUTDOWN SWITCH is located in the bottom right hand side of the MASTER CONTROL PANEL beside the FAST IDLE SWITCH.
5. Notify Dispatch and the shop.



ALLISON TRANSMISSION

WARNING: Take the following precautions so that unexpected, possible sudden vehicle movement is avoided. Whenever it becomes necessary to leave the vehicle, even momentarily, while the motor is running, place the transmission shift selector in N (neutral), set the brake and/or emergency brakes, and chock the wheels.

WARNING: Do not allow the vehicle to coast in N (neutral). This practice can result in severe transmission damage. Also no engine braking is available when the transmission is in neutral.

R Reverse: Completely stop the vehicle before shifting from a forward range to Reverse or from Reverse to a forward range. The Select indicator will display R and the Monitor will display R when in Reverse.

D Drive: The transmission will initially attain first range when D (drive) is selected. As vehicle speed increases, the transmission will upshift automatically through the range. As the vehicle slows, the transmission will downshift automatically. The SELECT indicator will display the highest range available and the MONITOR will display the current operating range.

3-2: Occasionally road conditions, load, or traffic conditions will make it desirable to restrict automatic shifting to a lower range. Lower ranges provide greater engine braking for going down grades (the lower the range the greater the braking effect).

Low Range (1): Use this range when pulling through mud and deep snow, when maneuvering in tight places, or when driving up or down grades. First range provides the vehicle with the most driving power and engine braking power.

Mode Button: The HT 740 Allison Transmission in the vehicle normally shifts up to fourth gear. This is for highway driving.

**TELMA RETARDER**

The vehicle is equipped with a TELMA retarder. It has four progressive stages of retardation. Four lights mounted on the dashboard indicate how many stages have been activated. An electronic speed switch is used to deactivate the retarder when the vehicle comes to a complete stop. The foot control is adjusted so that the retarder is in position three before the brake is applied. The retarder is capable of supplying up to 85% of the braking requirements.

EMERGENCY LIGHTING

The emergency lighting controls are located on the center section of the dashboard. The Master Warning Switch has to be in the "ON" position before any of the lights will work. The shop advises against leaving the light switches in the "ON" position and just turning the Master Warning Switch on and off. This will spike the alternator possibly causing damage.

**PUMP OPERATIONS**

The Pump shift on the E-One Cyclone uses a three-position air actuated control. The following steps should be followed to ensure that no damage is done to the transmission or the pump. Make sure that the parking brake is engaged. The throttle will not work if the parking brake is not engaged.

1. Shift the transmission to neutral (N).
2. Shift the pump shift to the neutral (middle) position.
3. Wait two to three seconds (count one-one thousand etc.)
4. Move the pump shift to the pump position (bottom). The OK to Pump light will come on.
5. Shift the transmission to Drive (D). The Pump Engaged will come on.
6. The speedometer will show 25-35 mph.



DISCHARGES

The E-1 Cyclone Engine has five discharges. Discharges one and two are located on the driver's side. Discharges three, four, and five are located on the officer's side. Discharge 5 is a large diameter discharge with a Stortz connection.

#1 Discharge	2 1/2"	Left Side
#2 Discharge	2 1/2"	Left Side
#3 Discharge	2 1/2"	Right Side
#4 Discharge	2 1/2"	Right Side
#5 Discharge	3"	Large Diameter Stortz Connection.

Booster Line 1" Located in the middle of the front bumper. The rewind switch is located on the left side of the hose mount. Deck gun is located above the pump panel. It is plumbed off the pump with 3" piping.

INTAKES

There are 5" threaded intakes on both the side panels. These are for soft suction connections. Some E-One Cyclone Engines may have a gated relief valve with a Stortz connection on the driver side intake. These are set to either 150 or 250 psi. There is a 3" intake on both side panels located on the bottom rear of the panel. There is a 5" intake with a Stortz connection on a swivel mount on the right side of the front bumper. Note: Hard suction may also be used on the 5" intakes for drafting purposes.

PRECONNECTS

There are three pre-connects on the E-One Cyclone Engine. The front jumpline is located in a compartment on the driver's side of the front bumper. The normal load is either a single 100' section or 150' of normal 1 3/4" hose. The quick load is on the right side over the rear compartments, below the ladders. Normal load is 150' or 200' of 2" hose. The other pre-connect is mounted in the left side of the hosebed. Normal load is 200' of 1 3/4" hose. Additionally 200' of 2 1/2" is carried to use as a handline. It is not carried as a pre-connect.

RELIEF VALVE OPERATION

To set the relief valve follow these steps.

1. With the throttle, adjust the pump discharge pressure to 5 psi above the desired pressure.
2. Turn the relief valve wheel counter clock wise until the pressure drops. The light should come on at this time.
3. Turn the relief valve wheel clockwise until the pressure is 5 psi above the desired pump pressure.
4. With the throttle, lower the pressure to the desired psi.
5. The relief valve is now set.



MANUAL PUMP SHIFT

There is no Manual Pump Shift for the E-One. If the pump shift fails, go back through the steps. If this fails call the shop.

PUMP OPERATING PANEL

The main controls for the pump operating panel are listed below. From left to right they are:

- Discharge 3
- Discharge 4
- Discharge 5
- Tank Fill
- Rapid Deployment
- Deck Gun
- Hose Reel
- Relief Valve
- Water (for foam operations)
- Foam
- Tank to Pump
- Front Jumpline
- Left Front Hosebed
- Discharge 1
- Discharge 2



The foam metering control is located just above the Foam control.
The throttle is located just above the relief valve wheel.

FOAM OPERATIONS

Starting the Foam System

The Foam System is located and incorporated on the main pump panel.

1. Start the main pump by engaging the necessary controls.
2. Select the correct % of foam mixture required. Either 1, 2, 3, or 6%.
3. Open the Tank to Pump valve.
4. Open the Water valve.
5. Open the Foam Valve.
6. Increase the Pump pressure to 200 psi.
7. Open the desired Foam discharge valve slowly.



NOTE: Check the foam holding periodically and add concentrate as required.

SHUTTING DOWN THE FOAM SYSTEM

1. Close the foam valve. Reduce the pump pressure to 100 psi.
2. Open the Foam Flush valve.
3. Open the foam percentage selector knob to the maximum setting.
4. Open all discharges until foam is no longer visible.
5. Operate the system for 3 minutes to clean the entire foam system.
6. Close the foam eductor valve.
7. Close the tank to pump valve.

DISENGAGEMENT

1. To remove from pump gear after pumping operations are completed:
2. Idle down the throttle.
3. Go to the cab and place the transmission in (N) Neutral.
4. Wait at least 5 seconds, move the pump shift lever up. (Wait at least five seconds for the rotation of the transmission to stop)

CAUTION: Failure to shift the transmission to neutral before shifting pump transmission will result in pump transmission failure!

DRAINS

Intake, discharge and other drains are located on both sides of the engine as noted below:

Driver's Side Discharges 1&2	Below Connection
Pony Suction	Below Connection
Pump Drain Bottom Left	Beside Step

Along the bottom of the pump panel are from left to right are:

Left Front Hosebed
Front Jumpline
Hose Reel
Deck gun
Rapid Deployment
Officer's Side
Discharge 3, 4, & 5
Pony Suction
Front Suction

Below Connection
 Below Connection
 Under Running Board
 Below Pump Panel



Drains (Officer's Side)



Drains (Driver's Side)